

**AMENDMENTS TO THE CLAIMS:**

Please amend the claims as follows. This listing of claims will replace all prior versions and listings of claims in the application.

1.-18. (Cancelled)

19. (Currently Amended) A random number generator, comprising:

a true random number generator generating a random sequence of bits having variable rate;

a pseudo-random number generator ~~arranged to generate~~ generating a pseudo-random sequence ~~by using the true random numbers produced by said true random number generator as~~ based on a random seed; and

a mixing logic connected between said true random number generator and said pseudo-random number generator, ~~and arranged to alter~~ said mixing logic generating said random seed based on said random sequence of bits and altering the behavior of said pseudo-random number generator ~~by using the based on said~~ random seed and said pseudo-random sequence.

~~said true random generator being arranged to generate a random sequence of bits having variable rate, and~~ said mixing logic comprising a generator of an alteration signal generator generating an alteration signal, ~~intended to change~~ said alteration signal altering the behavior of said pseudo-random number generator at multiple random instants in ~~[[the]]~~ an interval between the arrival of two subsequent seeds, thereby obtaining, in said interval, multiple pseudo-random sequences of random lengths shorter than the random length determined by the arrival of two subsequent seeds, said generator of the alteration signal generator being connected so as to receive said seed and said

pseudo-random sequence, and generate generating said alteration signal based  
on said seed and said pseudo-random sequence by processing said seed by  
means of the sequence generated by said pseudo-random number generator.

20. (Currently Amended) The random number generator as claimed in  
claim 19, wherein said ~~generator of the~~ alteration signal generator comprises:

a first down counter arranged to count down from a first random number  
represented by a first group of bits which are part of a randomly rotated version  
of a seed received by said alteration signal generator, said first counter loading  
said first random number and starting its countdown whenever a seed is  
available and, between the occurrence of two subsequent seeds, whenever it  
generates a terminal count signal, said terminal count signal being fed to said  
pseudo-random number generator as alteration signal;

a second down counter which is arranged to count down from a second  
random number represented by a group of bits of the sequence generated by  
said pseudo-random number generator and is arranged to load a new value of  
said second random number and to start again its countdown whenever said first  
down counter generates its terminal count signal; and

a recirculating shift register which receives the seeds and feeds said first  
down counter with said first random number, and which is arranged to generate  
said randomly rotated version of the seed in the intervals between the arrivals of  
two subsequent seeds by rotating the bits of the seed by an amount determined  
by the value of said second random number.

21. (Previously Presented) The random number generator as claimed in  
claim 19, wherein said pseudo-random generator is a linear feedback shift register and

said alteration signal generator supplies said alteration signal to the feedback logic of said linear feedback shift register.

22. (Previously Presented) The random number generator as claimed in claim 19, wherein said mixing logic further comprises an input circuitry arranged to receive the random sequence of bits generated by said true random generator to build said seed by parallelising the bits of said random sequence and to generate a signal indicating the availability of a seed.

23. (Currently Amended) The random number generator as claimed in claim 20, wherein said recirculating shift register is arranged to load a seed directly whenever it receives said signal indicating the availability of the seed, and said pseudo-random number generator is arranged to load a new seed upon command of said first counter whenever the latter receives said signal indicating the availability of the seed.

24. (Currently Amended) The random number generator as claimed in claim [[19]] 22, wherein said input circuitry comprises a clock signal generator for generating, starting from a first clock signal timing the operations of said input circuitry, and a second clock signal for timing said pseudo-random generator and said alteration signal generator whereby the output bit rate of the random number generator is independent of the rate of the random sequence of bits supplied by the true random generator.

25. (Previously Presented) The random number generator as claimed in claim 19, further comprising an output logic for parallelising the altered pseudo-random sequence and building words of a given length, said output logic comprising a scrambler for scrambling the bits in each word in random manner.

26. (Currently Amended) The random number generator as claimed in

claim 25, wherein said scrambler is controlled by a random selection signal provided by said ~~generator of the alteration signal~~ generator.

27. (Previously Presented) The random number generator as claimed in claim 20, wherein a random selection signal is supplied by said recirculating shift register.

28. (Previously Presented) The random number generator as claimed in claim 25, wherein said scrambler circuit comprises a switching matrix comprised of an n-level binary tree of switches, each controlled by a respective bit of said random selection signal so as to scramble or to let through unchanged its input bits.

29. (Previously Presented) The random number generator as claimed in claim 25 implemented as an integrated circuit.

30. (Currently Amended) A method of ~~generation of~~ generating random numbers, in which said random numbers are generated by altering a pseudo-random sequence ~~by means of true random numbers forming~~ based on said pseudo-random sequence and a random ~~[[seeds]]~~ seed used for the generation of said pseudo-random sequence, the method comprising the steps of:

obtaining ~~[[the]]~~ said random ~~[[seeds]]~~ seed from a random sequence of bits having variable rate;

generating said pseudo-random sequence based on said random seed;

~~processing a random seed to generate~~ generating an alteration signal exploiting the random arrival time of the bits of said sequence of bits based on said random seed and said pseudo-random sequence; and

changing altering the pseudo-random sequence by said alteration signal at random instants between the arrival of two subsequent seeds, thereby

obtaining, in said interval, multiple pseudo-random sequences of random lengths shorter than the lengths determined by the arrival of two subsequent seeds, said alteration signal being generated under the control of the pseudo-random sequence.

31. (Previously Presented) The method as claimed in claim 30, wherein said alteration signal is generated at the end of a first countdown starting from a first random number represented by a randomly variable group of bits that are part of a rotated version of a received seed obtained by rotating the seed by an amount indicated by a second random number represented by a group of bits of the pseudo-random sequence, the first countdown starting whenever a seed is generated and restarting, between the arrival of two subsequent bits, whenever the countdown itself ends; and wherein said second random number is the starting value of a second countdown starting whenever the first down counting ends, the end of said second countdown stopping said seed rotation.

32. (Previously Presented) The method as claimed in claim 30, wherein said pseudo-random sequence is generated by a linear feedback shift register and said alteration signal is fed to the feedback logic of said linear feedback shift register.

33. (Previously Presented) The method as claimed in claim 30, wherein the altered pseudo-random sequence is parallelised to create words of a desired length and further comprising a random scrambling of said words.

34. (Previously Presented) The method as claimed in claim 33, wherein said scrambling is controlled by a random selection signal obtained from the bits used to form said first random number.

35. (Previously Presented) A method as claimed in claim 30, further

comprising the step of generating, starting from a first clock signal timing the seed generation and a second clock signal for timing the generation of said pseudo-random sequence and of said alteration signal, the parallelisation of the output words and the scrambling, whereby an output bit rate independent from the rate of the random sequence of bits is obtained.

36. (Currently Amended) A non-transitory computer readable storage medium encoded with a computer program product loadable into a memory of at least one computer and including software code portions capable of performing the method of claim 30.